

ABSTRACT OF THE DISCLOSURE

A method supplies a dynamic vector map of properties within a region or a unified suite of quantification functionality for property functions, such as density functions, conduction functions (e.g., thermal conduction, electrical conduction, atomic or subatomic mass conduction, macromolecular mass conduction), defined on, defined in or defining a three-dimensional space, which functions may optionally vary in time. There should be at least two services assisting in the definition of the map or suite, even in a dynamic modality, selected from:

- (a) Computation of the volume of the region where the density lies above or below a specified threshold, or between two specified values;
- (b) Computation of the integral of the density (that is, determining a total amount of material within the region);
- (c) Estimation of the rate of change of the density with respect to time, optionally restricted to a specified region. The rate may be with respect to any property such as concentration changes, conductivity rates, temperature changes, optical density changes, viscosity changes, or any other observable property;
- (d) Estimation of the local or global failure of conservation represented by changes with time in the density, whether or not the method is given an implemented transport model;
- (e) Estimation of the local or global rate at which material with a changing density is passing through a specified surface (e.g., boundary), whether or not the method is provided with an implemented transport model;
- (f) Separation of the density of a material with a changing density, given an implemented transport model, into "free" and "bound" densities.